Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, D.C. 20554

In the Matter of	)	
	)	
Expanding Flexible Use in Mid-Band Spectrum Between 3.7 and 24 GHz	)	GN Docket No. 17-183
	)	
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COMMENTS OF THE CONTENT COMPANIES

The Walt Disney Company, CBS Corporation, Scripps Networks Interactive, Inc., Time Warner Inc., 21st Century Fox, Inc., and Viacom Inc. (collectively, the "Content Companies") file these comments in response to the Commission's Notice of Inquiry ("NOI") seeking "input on potential opportunities for additional flexible access" to mid-band spectrum, including the 3.7-4.2 GHz and 5.925-6.425 GHz spectrum ("C-band").[1]

The NOI appropriately asks questions about the potential for new uses of spectrum—particularly for wireless broadband—across the mid-band spectrum within the 3.7 to 24 GHz range. As creators of some of the most popular content consumed on wireless devices, the Content Companies encourage these efforts. With respect to the C-band, however, there is cause for concern. The Content Companies rely on fixed satellite service ("FSS") transmissions in the C-band to ensure the reliable distribution of compelling programming to more than 100 million American television households.[2] Accordingly, the Content Companies urge the Commission to scrutinize carefully any proposals for new uses of the C-band, and afford no further

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[1] *In re Expanding Flexible Use in Mid-Band Spectrum Between 3.7 and 24 GHz*, GN Docket No. 17-183, *Public Notice*, FCC 17-104 (rel. Aug. 3, 2017) (hereinafter "NOI").

[2] *See* Letter from the Content Companies to Marlene H. Dortch, Secretary, Federal Communications Commission, GN Docket No. 17-183 (July 24, 2017); *Nielsen Estimates 118.4 Million TV Homes in the U.S. for the 2016-2017 TV Season*, Nielsen.com (Aug. 26, 2016), http://www nielsen.com/us/en/insights/news/2016/nielsen-estimates-118-4-million-tv-homes-in-the-us--for-the-2016-17-season.html.

consideration to proposals that fail to meet the burden of demonstrating that existing C-band uses will be fully protected from harmful interference.

I. THE CONTENT COMPANIES INTENSIVELY USE THE C-BAND TO MAKE COMPELLING NEWS, SPORTS, AND ENTERTAINMENT PROGRAMMING AVAILABLE TO CONSUMERS ACROSS THE COUNTRY.

The NOI seeks comment on new uses of spectrum bands between 3.7 and 24 GHz, including the C-band from 3.7 to 4.2 GHz for downlinks and 5.925 to 6.425 GHz for uplinks. In considering any new uses, the Commission should take into account the critical role that C-band spectrum plays in enabling the delivery of programming by the U.S. media and entertainment industry, including the Content Companies. In particular, the C-band spectrum is used to deliver programming to each of the thousands of head-ends of multichannel video programming distributors ("MVPDs") and each of the well over 1,000 broadcast television stations affiliated with national television networks. It likewise is used to deliver content to over-the-top video distributors. Moreover, the on-site newsgathering and live event audio and video essential to producing breaking news, sports, and other programming also depends upon the C-band, using temporary fixed uplinks to transport video from the field back to studios and on to viewers.

Although the vast majority of American consumers have no reason to know what the C-band is, this spectrum is a vital part of the system for bringing compelling program to more than 100 million American households every day.[3] The spectrum literally forms the backbone of the entire infrastructure for delivering all premium video content to American consumers, regardless of whether they ultimately view programming over-the-air via broadcast stations or via a subscription to a cable, telco, satellite, or over-the-top television service. The system works

[3] *See* NOI at ¶ 8 (FSS uses of C-band spectrum between 3.7 and 24 GHz for "delivering television programming to cable headends.").

today with near-100% reliability to ensure that content instantaneously reaches virtually every U.S. household without interruption. If these C-band transmissions were to fail or otherwise be impeded due to harmful interference from other services, the viewing public would lose access to the most important news, the most popular entertainment, and the most exciting live sports programs—no matter what technology the consumer uses to access video.[4]

The Content Companies' utilization of the C-band for content delivery is intensive and depends on the maintenance of the current full-band, full-arc licensing model.[5] As the FCC recognized as early as 2000, this licensing model "provides all earth station operators the ability to conform to the constraints placed on the satellite operators and the flexibility to change channels to access available transponder capacity within a satellite network and available capacity on other satellite networks."[6]

The Commission's finding seventeen years ago continues to resonate today. While the Content Companies have links established with one or more specific satellites in the geostationary orbital arc over particular frequencies in the C-band, there often is need to use other satellites or frequencies on short notice. Possible events requiring prompt movement to another satellite and/or frequency include in-orbit satellite failures, emergency conditions on the

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[4] *See* Opposition of the Satellite Industry Association, RM-11791, at i (Aug. 7, 2016) (hereinafter "SIA BAC Opposition") (referring to the use of C-band for "backbone distribution of programming content for the nation's video delivery providers").

[5] The Satellite Industry Association has detailed the substantial public-interest benefits of the existing full-band, full-arc licensing regime. *See* Petition to Dismiss or Deny of the Satellite Industry Association, RM-11778, at ii, 14–15 (Jan. 9, 2017) (hereinafter "SIA FWCC Opposition") ("The flexibility of an earth station operator to shift frequencies and/or satellites without going through a lengthy re-licensing process promotes competition, enables satellite operators to provide service following a natural disaster or other emergency, and facilitates service continuity or restoration if a transponder or satellite suffers a problem. Moreover, this flexibility is needed to support resolution of interference issues, achieve and implement coordination with adjacent spacecraft, and allow the provision of occasional use services.").

[6] FWCC Request for Declaratory Ruling on Partial-Band Licensing of Earth Stations in the Fixed-Satellite Service That Share Terrestrial Spectrum, Noticed of Proposed Rulemaking, 15 FCC Rcd. 23127, 23145–46, ¶ 40 (2000).

ground (e.g., in the case of a natural disaster), or unexpected interference on frequencies currently in use. The full-band, full-arc licensing model affords prompt access to other in-orbit C-band satellites and frequencies in these cases. Without this flexibility to adapt to these and other unanticipated spectrum needs, the ability of the affected Content Companies and other content distributors to make news, sports, and entertainment programming available to the viewing public will be compromised.

The Content Companies rely on the flexibility provided by full-band, full-arc licensing even for planned events. For example, during "sun transit events," which occur several times annually, earth stations need to transition to alternative satellites to avoid interference from solar radiation that occurs when the sun is in alignment with the satellite's arc and the earth station. Moreover, the flexibility to use multiple satellites or frequencies is critical when there are multiple live events occurring simultaneously (e.g., as occurs during the NFL season, when networks may broadcast up to eight games each on a given day).

The full-band, full-arc licensing model plays an especially important role in facilitating breaking news, weather, and other event coverage using temporary fixed uplinks (i.e., satellite trucks).[7] By definition, there typically is little notice of the need to setup these links. Given the existing C-band sharing with terrestrial microwave services, coordination of C-band uplinks must occur on a site-by-site basis to determine which transponders to use without causing or being subject to harmful interference. Without the ability to access any satellite in the orbital arc and frequency in the C-band, as full-band, full-arc licensing allows, the Content Companies will be far less able to ensure that programming from satellite trucks can reach their network

[7] While the Ku band (11.7-12.7 GHz and 14-14.5 GHz) is at times used for satellite news gathering, it is not as reliable as the C-band. Unlike the C-band, the Ku-band is susceptible to atmospheric rain fades, for example. For this reason, C-band is the preferred transmission method for special events coverage.

operation centers. While the C-band is a vital link in the content delivery chain across the United States, its role in serving rural Americans is even more critical. Terrestrial distribution alternatives are scant in rural areas and rural consumers already lack ready access to broadband.[8] As the Satellite Industry Association ("SIA") has noted, the technical characteristics of C-band spectrum make it "uniquely suited to meeting the needs of customers who require high availability, especially those in remote locations for whom no alternative communication offerings exist."[9]

II. PROPOSALS FOR NEW USES OF THE C-BAND MUST DEMONSTRATE THAT THEY WOULD PROTECT VIDEO PROGRAM DELIVERY.

To be clear, the Content Companies welcome opportunities to improve wireless broadband connectivity. Our viewers increasingly consume content over their smartphones, tablets, and other mobile devices, and we have as much interest as anyone in seeing that available bandwidth is aligned with demand. But at the same time, opening up spectrum to new uses should not be a zero-sum game that comes at the expense of spectrum that is used intensively to make programming available to more than 100 million American households. Given the critical role that C-band spectrum plays in making vast amounts of programming available to the American public, the Commission should consider only those proposals capable of demonstrating that these and other existing uses of the C-band spectrum will be fully protected and preserved.

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[8] *See* 2016 Broadband Progress Report, 31 FCC Rcd. 699, 730, ¶ 79 (2016) ("more than 39 percent of Americans living in rural areas lack[] access to 25 Mbps/3 Mbps advanced telecommunications capability").

[9] SIA BAC Opposition at 6; *see also* SIA FWCC Opposition at 13 ("[D]ue to their broad geographic reach and distance-insensitive pricing, satellites allow ubiquitous communications coverage, including in areas that are difficult or uneconomical to serve using terrestrial facilities.").

The burden of demonstrating that no harmful interference from these proposed new uses—including the provision of detailed technical parameters for evaluation by the Commission and the public—should rest on those proposing new uses of the spectrum. This is so because satellite providers, content companies, broadcasters, MVPDs, and others have invested billions of dollars in distribution mechanisms and related infrastructure in the C-band in reliance on the existing framework and its protections. It also would be unreasonable to ask existing C-band users to study or evaluate any proposal that does not contain sufficient technical detail to enable a thorough analysis. Accordingly, the Commission should direct proponents of new uses to provide complete technical details of any proposed new operation.

Interference protection is essential in the C-band because transmissions to receiving stations in the 3.7-4.2 GHz downlink band are especially prone to harmful interference from other services. This is a simple matter of physics. By design, receiving earth stations are extremely sensitive—a necessity in order to receive a low-power signal from a satellite transmitter orbiting the Earth some 22,236 miles above the surface of the equator. Signals from new fixed or mobile services—even if operating at what otherwise might be considered "low" power—thus have significant potential to interfere with the reception of satellite signals by earth stations operated by MVPDs, broadcast television stations, and others.

The Content Companies look forward to reviewing proposals that are filed in response to the NOI. In the meantime, however, we observe that proposals filed to date in this and other dockets have failed to set forth reasonable protections for existing uses of the C-band, and envision rule changes that would result in significant harmful interference to those current uses—including by eliminating full-band, full-arc licensing, which as discussed above is integral to uninterrupted delivery of video programming to the American public. Such proposals should

not advance to the Notice of Proposed Rulemaking ("NPRM") stage absent significant changes to fully prevent any harmful interference to audio and video delivery systems in the C-band. The Content Companies are aware of three such proposals that have been presented to the Commission in recent years: the Broadband Access Coalition ("BAC") proposal, proposals for a mobile allocation in the C-band, and the proposal by Fixed Wireless Communications Coalition, Inc. ("FWCC").[10]

The BAC represents point-to-multipoint fixed wireless interests and proposes to eliminate full-band, full-arc licensing, without offering practical alternatives.[11] Specifically, the BAC proposes to allow new transmissions at power levels that are extraordinarily high, in some cases up to 25 times higher than those specified today for C-band fixed point-to-point (microwave) services.[12] Point-to-multipoint transmissions, by their nature, emit signals in many directions, making coordination especially difficult and increasing the potential for harmful interference to existing C-band usage. The BAC's response to this concern is inadequate, stating without elaboration that it is "confident" that the current flexibility of FSS "can be accommodated" under its proposal to eliminate full-band, full-arc licensing.[13] According to BAC's proposal, FSS licensees would be able to "change the frequency or orbital slot of their communications" only in "circumstances when such a change is necessary," but BAC provides no guidance as to who

[10] *See* Broadband Access Coalition Petition for Rulemaking, RM-11791 (June 21, 2017) (hereinafter "BAC Petition"); Fixed Wireless Communications Coalition, Inc. Petition for Rulemaking, RM-11778 (Oct. 11, 2016) (hereinafter "FWCC Petition"); Letter from Mary L. Brown, Cisco Systems, Inc. to Marlene H. Dortch, Secretary, Federal Communications Commission, GN Docket No. 17-183 (July 19, 2017) (hereinafter "Cisco Letter"); Comments of T-Mobile USA, Inc., RM-11791, GN Docket 17-183 (Aug. 7, 2017) (hereinafter "T-Mobile Comments").

[11] BAC Petition at 5–6.

[12] *Id.* at 30; *see also* Reply of the Satellite Industry Association, RM-11791 at 9 (Aug. 22, 2017).

[13] BAC Petition at 26.

determines when such changes are "necessary," nor how that determination should be made (or implemented on what may be extremely short notice).[14] BAC's proposal therefore fails to provide any concrete proposal to protect existing FSS C-band uses, including those relied on by the Content Companies.

Other parties have proposed a mobile allocation for the C-band downlink spectrum, which has the potential to cause even greater harm to existing C-band uses than the BAC proposal, given the inherent ubiquity of mobile devices. Certain commenters, such as Cisco and Intel, already have made filings in this docket asserting the "[i]mportance of adding a mobile allocation to the 3.7-4.2 GHz band."[15] Similarly, T-Mobile proposed that "rules governing the [3.7-4.2 GHz] band should be structured to permit *any* use permitted by the Table of Allocations," including "mobile use."[16] But this proposal to allow mobile usage in the C-band has already been considered and rejected at the international level. The World Radiocommunication Conference 2015 ("WRC-15") recognized that C-Band frequencies are not suitable for mobile usage, and rejected efforts by certain parties to obtain a global allocation of the C-band spectrum for international mobile telecommunications ("IMT") services. Technical studies prepared for WRC-15 likewise show that sharing of mobile services with FSS in the C-band is infeasible, given that no minimum separation distance can be guaranteed.[17] Even the

[14] *Id.*

[15] Cisco Letter at 1.

[16] T-Mobile Comments at 6.

[17] International Telecommunication Union, Report ITU-R S.2368-0 at 32 (June 2015), *available at* https://www.itu.int/dms_pub/itu-r/opb/rep/R-REP-S.2368-2015-PDF-E.pdf ("When FSS earth stations are deployed in a typical ubiquitous manner or with no individual licensing, sharing between [International Mobile Telecommunication]-Advanced and FSS is not feasible in the same geographical area since no minimum separation distance can be guaranteed. Deployment of IMT-Advanced would constrain future FSS earth stations from being deployed in the same area in the bands 3 400-4 200 MHz and 4 500-4 800 MHz as shown by the studies.").

BAC has acknowledged that the C-band "is not now, and will not for several years, be suitable for mobile use given the existing deployment of FSS earth stations and FS P2P links."[18] It is therefore clear that mobile uses are incompatible with existing C-band uses, and any such proposals should be rejected by the Commission.

Finally, the FWCC, representing fixed point-to-point services that currently share C-band spectrum with FSS, also has proposed elimination of the full-band, full-arc licensing regime.[19] But like the BAC, FWCC has failed to propose a viable alternative regime that adequately safeguards the critical FSS infrastructure. FWCC has also failed to demonstrate that existing coordination procedures—under which the C-band has been shared by FSS and point-to-point microwave links for many years—are insufficient to meet microwave demand. As SIA notes, FWCC's petition "does not contain even a single example of an FS provider being unable to establish a microwave link because of objections from an FSS earth station licensee."[20] Particularly in light of the success of existing C-band coordination between FSS and fixed point-to-point services, the burden is on FWCC to demonstrate that a change in the existing regime is necessary, and FWCC has not met that burden. And even if changes were necessary, the measures proposed by FWCC are unworkable for the reasons detailed by SIA.[21]

[18] BAC Petition at 6.

[19] FWCC Petition at 2. The Content Companies previously submitted a letter in opposition to the FWCC proposal. *See* Letter from the Content Companies to Marlene H. Dortch, Secretary, Federal Communications Commission, RM-11778 (Jan. 24, 2017).

[20] SIA FWCC Opposition at i.

[21] *See* SIA FWCC Opposition at 18–23.

III. CONCLUSION

The Content Companies support reasoned Commission evaluation of mid-band spectrum policy as indicated in the NOI. This evaluation should proceed, however, with a recognition of the vital importance of the C-band to the delivery of news, entertainment, sports, and public interest programming to more than 100 million American households. Before any proposal advances to the NPRM stage, proponents should be obliged to demonstrate through sharing analyses and robust testing that new uses would fully protect existing C-band operations.

Respectfully submitted,

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